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Amendments to the Specification:

Please add the following new paragraph after the title of the invention and above Field of the Invention:

[000] This application claims the benefit of U.S. Provisional Application No. 60/413,162, filed September 25, 2002.

Please replace paragraph [0028] with the following replacement paragraph:

[0028] Inductors IN1 and IN2 are arranged in series with each other, and the input pulses of a first frequency are approximately identical and in phase. In other words, in this example, PP1 and PP2 are identical, and PM1 and PM2 are identical, however the positive-going (PPn) and negative-going (PMn) pulses are applied alternatively in a push-pull manner, not simultaneously to the inductors. The combined inductances of IN1 and IN2 are selected to oscillate in tuned resonance with a capacitance of C3 combined in parallel with <u>the capacitance</u> ~~all~~ of the rest of the circuit attached to the secondary windings of IN3 and IN4, namely C4, and FAIMS load plus all other stray capacitances throughout the circuit. C1 and C2 do not contribute to the tuning as they are bypass capacitances for the DC voltages B1 and B2. C5 does not contribute to the tuning of IN1 and IN2 as it is balanced across IN3 and IN4. For example, if the combined inductance of IN1 and IN2 is 0.45 mH then the circuit will oscillate at 750 kHz if the capacitance of C3 in parallel with the rest of the circuit is 100 pF.

Please replace paragraph [0037] with the following replacement paragraph:

[0037] Figure 4a illustrates the fundamentals of the windings of inductors IN1, IN2, IN3 and IN4 that were discussed in relation to the circuit shown at Figure 2a. A similar approach is taken for IN1b and IN2b in ~~Figures 2b and~~ <u>Figure</u> 3a but using one center-tapped primary winding rather than two completely independent primary windings as shown in Figure 2a and Figure <u>2b</u> ~~4a~~. Referring still to Figure 4a, primary winding 20 is coupled to an input 10 and primary winding 22 is coupled to an input 12, to which are applied a primary positive pulse (PP1 in Figure 2a) and a primary negative pulse (PM1 in Figure 2a), respectively. Referring also to Figure 4b, the primary positive pulse is

composed of a square wave with a low side 47 near zero volts and a high side 45 at an adjustable value (for example +5 V as shown at Figure 4b). The primary negative pulse is composed of a square wave with a high side 50 near zero volts and negative side 55 at an adjustable voltage (for example -5 V as shown at Figure 4b). As shown in the timing diagram of Figure 4b, the pulses are applied in an alternating fashion, wherein the voltage 45 is applied on the primary positive pulse while voltage 50 is applied on the primary negative pulse. Similarly, the voltage 47 is applied on the primary positive pulse while voltage 55 is applied on the primary negative pulse. The effect is to create magnetic fields in the inductive core 14, which alternately changes direction during application of pulses in the positive polarity through input 10 and negative polarity through input 12. The pulses are driven through load resistors 16 and 18 on the positive and negative sides, respectively. The load resistors 16 and 18 ensure a minimum source impedance for the driver circuit. This source impedance multiplied by the square of the transformer turns ratio appears as a load in parallel with the secondary tuned circuit. This extra load reflected from the primary source impedance is driven by the LC tuned circuit, thereby reducing the real voltage amplitude output of the combined LCR circuit. If one chooses the circuit parameters so that R is equal to the tuned impedance of LC, the output voltage is one half of a similar free running (or unloaded) LC tuned circuit. The currents in primary windings 20 and 22 result in magnetic fields in core 14 that also induce electrical currents in the secondary winding 24. The voltage induced in the secondary winding is related to the number of times the secondary winding 24 is wrapped around the core 14 relative to the number of times that primary winding 20 or ~~and~~ 22 is wrapped around core 14. Referring again to Figure 2a, the secondary windings 24 of inductors INn are linked to a capacitive load. Preferably, the inductance of the secondary winding 24 wrapped around core 14 is suitable for a tuned LC oscillation with the capacitive load.

Please replace paragraph [0039] with the following replacement paragraph:

[0039] Figure 5 illustrates two improvements of the embodiment shown at Figure 4a. First, the secondary winding 30 is wrapped along a significant portion of the core 32. This permits an increased number of turns of the secondary winding 30 to be placed on the core 32, relative to the arrangement illustrated at Figure 4a. Each turn of the

secondary winding 30 is spaced-apart from adjacent turns of the secondary winding 30 in a direction along the length of the core 32. The set of parallel primary windings 34 and 36 from the drive circuit are wrapped external to the turns of the secondary winding 30, and are spaced away from the core 32 and from the secondary winding 30 by an air gap to prevent electrical discharge and capacitive coupling between the primary windings (either 34 or 36) and the secondary winding 30. The second improvement is a modification of the core 32. A segment of the core 32 is removed to leave a gap 38. Alternatively, the core 32 is formed initially into a substantially C-shape, leaving a space between opposite ends of the core 32 that defines the gap 38. This gap 38 is required in order to prevent electrical discharge and electric field leakage through the core material between the two ends of the secondary windings 30 which may have significant voltage differences between them. The gap 38 also minimizes the heat generated in the core material in the region between the two ends of the secondary windings. Heat is generated by electrical leakage and power losses in the material between the two ends of the secondary windings and through the core. The gap 38 minimizes this power loss. The core material is chosen not to have a high magnetic permeability, this is necessary for the number of turns and the inductance requirements of the application. The material also exhibits low losses at the frequencies of interest. Therefore the gap 38 does not significantly change the inductance of the core 32 and the secondary winding 30.